



## Slideshow

FULL DETAILS AND TRANSCRIPT

### Developing Girls' Interest in Science

Clarke N. Johnsen Junior High School, Utah • November 2007

Topic: Encouraging Girls in Math and Science

Practice: Sparking Curiosity

#### Highlights

- Instruction that involves projects, an interesting context, open-ended problem solving, and hands-on use of materials can help develop girls' interest in science.
- Labs in science classrooms actively engage students as scientists, and help them see themselves in scientist roles.
- In some of the labs, students design their own experiments and decide on the measurement tools.
- After-school math and science clubs also provide great opportunities for hands-on science experience.

#### About the Site

Clarke N. Johnsen Junior High School  
Tooele, UT

#### Demographics

83% Caucasian, 12% Hispanic, 2% African American, 1% Asian, 2% American Indian

35% free and reduced price lunch

51% female students

In Clarke N. Johnsen Junior High School teachers and school administrators collaborate to encourage girls in science. The approach taken by the school includes:

- Teachers serve as role models and deliberately discuss their own education, experiences, and interests as scientists
- Female scientists invited as speakers and to model science activities
- Active recruitment of girls to participate in regional events promoting women in science
- Innovative lesson plans that draw on girls' experiences and interests, and involve all students using techniques such as group projects and open-ended exploration
- Science teachers work with students to develop career interests that are not gender biased

## Full Transcript

Presentation Title: Fostering Girls' Interest in Middle School Science

The science teachers at Clarke N. Johnsen Junior High School believe that girls can and will become interested in science if the lessons are interesting and relevant. See how the four-woman science department uses innovative science activities to grab the girls' interest and to help girls see that science is part of their world and their future.

### Slide #1: Hands-On Science

Instruction that involves projects, interesting context, open-ended problem solving, and hands-on use of materials can help develop girls' interest in science.

The science teachers at Johnsen Junior High School share a love for science and use innovative methods to teach science and develop girls' initial and lifelong interest in science.

### Slide #2: Projects

Working together on a project can help capture students' interest. Setting the project in an interesting context also helps. Seeing insects is better than reading about insects, and going out to the field to catch insects is even more interesting.

### Slide #3: Insect Field Trip

Interest in environmental science and biology is built through “insect field trips.” The students participate in several activities, including digging “bug traps” to catch bugs for further study. The girls may express some disinterest in activities that involve “getting dirty” or otherwise being “unfeminine,” but they soon forget their reservations once they are immersed in the activity. This experience is memorable for them and helps them see themselves as scientists working in the field.

### Slide #4: Signs of Life

Other students examine and collect signs of life from a field. They collect various bugs for later classification with their classmates. Even the girls who were initially squeamish get involved in the activity.

### Slide #5: Labs

The science teachers at Johnsen Junior High School regularly do labs in their classrooms to actively engage the students as scientists.

### Slide #6: Imagine You Are A Researcher

Labs help boys and girls see themselves in scientist roles by helping them step into “scientist shoes.” They develop hypotheses, come up with the steps of exploration, and analyze the results of their research.

### Slide #7: Ordinary Objects - Extraordinary Explorations

In this “density lab,” students were given a piece of bread and asked to alter it in any way they chose and determine the mass and density before and after the change, using whatever tools they chose.

### Slide #8: Active Learners

Students used measurement to gather data and learn about the physical law of the preservation of mass. Students weighed, measured with rulers, measured with tape, and otherwise tested their bread before and after changing it.

#### Slide #9: Coming to Conclusions

Although they used different methods and changed their bread in different ways, they all came to the same conclusion: density can change, but mass does not.

#### Slide #10: Opportunities for Enrichment

The Mathematics, Engineering, Science Achievement (MESA) club gives girls and minority students hands-on experience in science explorations after school hours. MESA activities often include science games, projects, and activities. Working as a team, girls provide validation for each girl's image of herself as an engineer.

#### Slide #11: Working Together

In one MESA meeting, a group of students built a structure using blocks, and then wrote down the directions. Another group of students tried to recreate the structure using only the directions.

#### Slide #12: Lessons Learned

In this activity, students discovered how important it is to be clear and explicit about steps in a process, so that others can replicate their work. And they had fun doing it!